

# PATENT SPECIFICATION

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## COMPLETE SPECIFICATION

### Electric Discharge Tube

We, LUMALAMPAN AKTIEBOLAG, a joint stock Company organized under the Laws of Sweden, of Södra Hammarbyhamnen, Stockholm 20, Sweden, do hereby declare 5 the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

10 The present invention relates to an electric discharge device in which a member reducing the sputtering of electrode material is arranged in front of or around each electrode and shaped, for instance, as a cup, hood, or the like. Such sputtering reducing members have been used particularly in the case of so-called fluorescent tubes, i.e., tubular lamps filled with rare gas and mercury vapour and 20 provided either with a fluorescent coating applied on the inside of the envelope or with an envelope containing a fluorescent substance. In devices known as cold-starting discharge tubes they have 25 consisted of discs mounted across the envelope in front of the electrodes.

According to the invention in an electric discharge tube having a filling of rare gas and mercury vapour and provided with 30 preheatable incandescent coil electrodes with double feed wires, one feed wire of each electrode is connected to a current source and the remaining feed wires are connected with an auxiliary circuit which 35 contains a switch controlling the preheating of the electrodes. Further a screening member reducing the sputtering of electrode material is arranged in the shape of a cup, hood, or the like, in front and 40 around each electrode, the member being divided into two halves, one half of which is connected to the one feed wire of the electrode and the other to the other feed wire of the electrode. By such a design 45 of the discharge device the following effect will be obtained according to the invention. During the periods when the electrodes operates as a cathode the half of the screening cup which is connected to the 50 most negative end of the electrode functions as an excellent collector of the

positive ions which come from the rare gas filling. These are thus effectively prevented from reaching the emitting coating of the electrode where they would cause a 55 reduction of free metal out of the active oxide coating and vaporization of the metal.

The invention is illustrated by an electric discharge device shown in the accompanying drawing. The drawing shows a discharge tube of the fluorescent lamp type with a fluorescent envelope 1 being closed by means of a pair of stems 4 on which two electrodes 7 are applied 60 designed as incandescent coils and provided with double feed wires. Each feed wire 3, 3 of the electrodes is connected to a pole of a current source, a series impedance 8 for the tube being included 65 in one of the connections. The remaining feed wires 5, 5 of the electrodes are connected with an auxiliary current circuit 9, lying parallelly to the main discharge path and containing a switch device 10; 70 a glow switch for instance. The auxiliary current circuit is intended to preheat the electrodes of the tube at the start. When the auxiliary current circuit is opened by 75 the switch the tube is caused to start on the voltage, lying across the electrodes in the opening moment. Near each one of the electrodes 7 there is a screening member 80 arranged in the shape of a hood, pulled over the electrode which by a split is 85 divided into two halves 2 and 6, each connected to its feed wire 3 or 5, respectively, of the electrode.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim 90 is:—

An electric discharge tube having a filling of rare gas and mercury vapour and 95 provided with preheatable incandescent coil electrodes with double feed wires, one feed wire of each electrode being connected to a current source and the remaining feed wires being connected with an auxiliary 100 circuit which contains a switch controlling the preheating of the electrodes.

[Price 1/-]

characterized by the fact that a screening member reducing the sputtering of electrode material is arranged in the shape of a cup, hood, or the like, in front and  
5 around each electrode, the member being divided into two halves, one half of which is connected to the one feed wire of the electrode and the other to the other feed wire of the electrode.

Dated this 11th day of April, 1945.  
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*[This Drawing is a reproduction of the Original on a reduced scale.]*

